



NEWSLETTER

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Interesting Article

Roger Sealy of the National Biomedical ESR Center of the Medical College of Wisconsin in Milwaukee has brought the following article to our attention. If you haven't seen it already here are some excerpts from it:

The New York Times - Tuesday, Oct. 19, 1982

"Color Has Powerful Effect on Behavior Researchers Assert" by Lindsey Gruson

When children under detention at the San Bernardino County Probation Department in California become violent, they are put in an 8-foot by 4-foot cell with one distinctive feature - it is bubble gum pink. The children tend to relax, stop yelling and banging and often fall asleep within 10 minutes, said Paul E. Boccumini, director of clinical services for the department. Passive pink, as it is also called, is perhaps the most dramatic example, and certainly the most controversial, of many attempts to use light and color to affect health and behavior. Already, there are enough color schemes to spark nightmares about mind control: red to increase appetite and table turnover in restaurants, ultraviolet to reduce cavities and spur children's I.Q.'s, and blue to swell the ratio of female chinchilla babies to males.

- An estimated 1,500 hospitals and correctional institutions across America have become sufficiently convinced of the pacifying effect of bubble gum pink and color at least one room that shade.

- the urgency of understanding the effect of artificial light can only become critical. As a result the ancient and once discredited field of chromotherapy has been rejuvenated. (Chromotherapy is now called photobiology or color therapy to distinguish it from the once-popular work of Victorian quacks.)

- different colors affect blood pressure, pulse and respiration rates as well as brain activity and biorhythms. As a result, colors are now used in the treatment of a variety of diseases.

- London's Blackfriars bridge was repainted blue in an attempt to reduce the number of people who commit suicide by jumping from it.

- the Soviet Union one of the leaders in Photobiology, shower coal miners with ultraviolet, which they believe prevents black lung disease, and supplements the fluorescent lights of schoolrooms with ultraviolet lamps.

- several municipalities are experimenting with passive pink to stop graffiti, while football coaches try the color in visitors' dressing rooms, hoping to debilitate their opponents.

- Nor has photobiology's roots in mysticism, which empowered color with symbolism and magic, added to its credibility.

- As designers and interior decorators have discovered, color sets a mood; this in turn, affects health because as many as half of modern man's diseases may have a psychosomatic component.

- light had the "identical" impact on the blood pressure, pulse and respiration rates of two blind children as on seven students with normal sight. The children's mean systolic blood pressure dropped from 120 to 100, or nearly 17 percent. The children were also better behaved and more attentive and less fidgety and aggressive, according to the teachers and independent observers. When the room was returned to its original design, however, the readings gradually increased and the children once again became rowdy.

- "Perhaps these are new beginnings." "The magical properties of light and color, granted by men since the earliest of times, accepted, renounced and accepted again through the ages, have forever held fascination. It would be delightful, of course, if a thing of such psychological beauty - color- also held a mundane role in human physiological well-being."

Meeting Report

Nato Advanced Study Institute - "Molecular Models of Photoresponses".
San Mineato (PISA) Italy. August 29 - September 8, 1982.

The following is a brief synopsis of the key points discussed at this meeting. It is not intended as a model for such reports but as a stimulant for reports from other members attending meetings, workshops, etc. The comments included came mostly from two "summing up" sessions conducted by G. Montagnoli of the Institute of Biophysics in Pisa, W. Shropshire of the Smithsonian, B. Erlanger of Columbia University, and A. Eker of Delft University. The purpose of the meeting was to bring together biologists, chemists, and physicists whose interests involved photoprocesses. These included scientists working with model systems and those working with living organisms.

A common theme throughout the conference was the relationship between molecular structure and function especially when modified by photo-excitation. Many photochemical processes take place in ordered cellular arrangements (eg., membranes). Changes in photoreceptor (PR) position can change the whole arrangement of membrane systems. Research using liquid crystals may aid in deciphering the molecular mechanisms of these changes. Action spectroscopy studies can help identify the PR but can be influenced by cell geometry, cell position (in the skin, shading by leaves, etc.) and by the PR microenvironment. Of paramount importance is where the PR is when it is excited.

Certain important PR molecules were identified as catalysts (eg. rhodopsin) or as needing light as a co-factor (eg. photoreactivating enzyme). The roles of tRNA in growth delay, the pyrimidine dimer in cell death and mutation, and other important photoproducts (eg. photoadducts) were discussed as they relate the overall photosensitivity. The repair of photodamage can ameliorate some of the harmful effects on photodamaged systems.

It was stressed that the PR system has to be both turned on and turned off. This led to a discussion of using these systems as "switches" in either biological or industrial processes. It is also possible to attach photochromophores to chemicals such as DDT that would make them susceptible to photodegradation by sunlight after their pesticide use was completed. Photochromic compounds can participate in enzyme modulated systems. You can regulate such systems by changing either the substrate or the photoreceptor.

There also exist chemicals that simulate the effects of light upon molecules. This "photobiology without light" could be responsible for some spontaneous mutations and may be able to participate in repair processes.

The meeting proved to be cooperative, informative, and stimulating. Those interested in obtaining details of the scientific presentations should contact Dr. Georgio Montagnoli, CNR, Istituto di Biofisica, Via S. Lorenzo, 26, 56100 Pisa, Italy. He is preparing a monograph containing the material presented during the nine days of conferences.

Meetings

1983

- April 24-28 The Clayton Foundation Symposium on Porphyrin Localization and Treatment of Tumors, Santa Barbara, California.
The symposium will address the basic physical science aspects of porphyrin development as well as the application to preclinical and clinical research for the localization and treatment of tumors. Papers are requested in the areas of porphyrin photosensitization and localization, photophysics and instrumentation, preclinical and clinical trails. The abstract deadline is January 1, 1983. For further information please contact: Dr. Daniel R. Doiron, Symposium Chairman, Clayton Ocular Oncology Program, Childrens Hospital of Los Angeles, P.O. Box 54700, Los Angeles, California 90054.
- August 26-30 The Forsius Symposium on Colour Order Systems, a Midterm Meeting of the International Colour Association, will be held in Kungälv, near Gothenburg, Sweden. Sigfrid Aron Forsius (1550-1624) was a Swedish scientist who published one of the earliest known color circles.
The Forsius Symposium will be a forum for discussions on the philosophy of, the need for, the principles behind, and the usefulness of various Colour Order Systems. As the number of participants has to be limited, preference will be given to those who contribute to the topics by submitting papers. Persons wishing to take part in this Symposium are invited to submit papers under any of the listed subtopics. A short abstract of maximum 100 words should be sent to the Papers Committee no later than January 31, 1983.
The Forsius Symposium will be arranged for the AIC by the Swedish Colour Centre Foundation in collaboration with the Swedish Colour Group, the Department of Psychology at the University of Goteborg, SIS, The Swedish Standards Institution, and the Scandinavian Colour Institute. For further information, contact the Secretariat of The Forsius Symposium, Box 14038, S-104 40 Stockholm, Sweden.

Postdoctoral Positions - Solar Photochemistry

(1) Physical chemist to study spectroscopy, photophysics and photochemistry of chlorophylls, porphyrins and synthetic donor-acceptor complexes. Experience in any of the following areas is highly desirable: lasers, computers, flash photolysis, photon-counting instrumentation, spectroscopy and photophysics of large molecules in condensed phase.

(2) Organic chemist to synthesize covalently linked donor-acceptor complexes based on porphyrins and chlorophylls as electron donors. Experience with porphyrin compounds is highly desirable.

SERI facilities include a computerized laser flash photolysis system with both PMT and OMA detection; photon-counting instrumentation for luminescence spectra and lifetimes; Cary 17D and Hewlett Packard 8450 spectrophotometers; EPR, RT-NMR and RT-IR spectrometers; as well as a full complement of preparative and analytical instrumentation.

Salaries will be \$18,000-\$20,000, depending on experience, with some benefits and modest travel allowance. Each position will be for one year with possibility of renewal for a second year.

Send resume, including names of three references, to Dr. John S. Connolly, Photoconversion Research Branch, SERI, 1617 Cole Boulevard, Golden, CO 80401. SERI is an equal opportunity, affirmative action employer.

News Release - American Society of Plant Physiologists

At the annual meeting of the American Society of Plant Physiologists at the University of Illinois, Champaign, June 13-17, new officers were elected as follows:

PRESIDENT - Dr. Leonard Beevers, Department of Botany and Microbiology, University of Oklahoma, Norman, OK (assumes office October 1, 1982).

PRESIDENT-ELECT - Dr. N. Edward Tolbert, Biochemistry Department, Michigan State University, East Lansing, MI (assume office October 1, 1983).

Society Awards presented were:

STEPHEN HALES PRIZE FOR OUTSTANDING RESEARCH TO Dr. Lawrence Bogorad, Biological Laboratories, Harvard University, Cambridge, MA.

CHARLES REID BARNES LIFE MEMBERSHIP FOR OUTSTANDING SERVICE IN PLANT PHYSIOLOGY TO Dr. Daniel I. Arnon, Cell Physiology Department, University of California, Berkeley, CA.

New Books

"The Joys of Research" edited by Walter Shropshire Jr., Smithsonian Institution Press, Washington, D.C. 1981. A book dedicated to "that linkage of truth and decency." Including chapters and discussions by Paul Forman, Julius Axelrod, I.M. Singer, A.J. Harrison, H.M. Temin, G.B. Field, A.E. Hellegers, William Schumann, R.S. Yalow, J.T. Wilson, J.D. Ebert, Linus Pauling, Ernst Mayr and W.D. Cary.

"Photochemical Conversion and Storage of Solar Energy" edited by John S. Connolly. The eleven chapters in this volume are primarily concerned with photochemical and photoelectrochemical mechanisms of solar energy conversion, and represent the plenary lectures given at the Third International Conference on Photochemical Conversion and Storage of Solar Energy held at the University of Colorado at Boulder on August 3-8, 1980. Academic Press, 111 Fifth Avenue, New York, N.Y. 10003. \$34.50.

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